

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Appln. No. 09/780,485

**REMARKS**

In this Amendment, claim 11 has been added as a new claim. Support for this claim is found, for example, at page 12 of the specification, lines 22-28.

No new matter has been added. Accordingly, entry of this Amendment is respectfully requested. Upon entry of the Amendment, claims 1-11 are all the claims pending in the application.

In Paragraph No. 4 of the Office Action, claims 1, 2 and 8-10 have been rejected under 35 U.S.C. §102(b) as allegedly anticipated by, or in the alternative, under 35 U.S.C. §103(a) as allegedly obvious over Tojo et al (U.S. 4,877,817).

Tojo et al is relied upon to disclose a foamed rubber having a hardness (expressed as a HS JISA) within the range presently claimed and a density of 0.7 (table 1 and column 18, line 13). It is conceded that Tojo et al do not disclose the presently claimed cell diameter of the foamed rubber. However, it is concluded that the presently claimed cell diameter would be inherently present because Tojo et al disclose the same materials and the same process to form the rubber (column 10, lines 18-50).

Regarding, claims 8 and 10, it is asserted that Tojo et al disclose that the vulcanized and foamed rubber is useful as an electrical insulating material covering the conducting part of electrical wires (column 9, line 68 and column 10, lines 25-28). The electrical wire is deemed analogous to a rigid body as set forth in the present claims.

Regarding claim 9, Tojo et al is relied upon to disclose the same material (an ethylene-alpha-olefin-non-conjugated diene copolymer rubber and a blowing agent azodicarbonamide) and the same process (blending, heating, molding and foaming) to form the vulcanizable and

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Appln. No. 09/780,485

foamable rubber having a Mooney viscosity, hardness properties and density meeting the recited ranges of the present claims. It is asserted that the Young's modulus would be inherently present.

Applicants respectfully traverse this rejection on the basis that Tojo et al do not teach or render *prima facie* obvious the present invention, as will be appreciated from the following.

First, it should be recognized that while Tojo et al use the same methods as in the present invention to determine Mooney viscosity and hardness, i.e., JIS-K-6300 and JIS-K-6301 (A type), respectively, the objects to be determined as to Mooney viscosity and hardness of Tojo et al are different from those of the present invention.

In the present invention, Mooney viscosity is determined with respect to the rubber composition. On the other hand, in Tojo et al, Mooney viscosity is determined with respect to the raw rubber.

In the present invention, the hardness is with respect to a foamed rubber (specification, page 7, line 20). On the other hand, in Table 1 of Tojo et al, the hardness is with respect to a solid rubber, i.e., a non-foamed rubber.

Accordingly, Applicants submit that there is no reasonable grounds for asserting that the Mooney viscosity and hardness disclosed in Tojo et al fall within the presently claimed ranges. Further, Applicants submit that there is no reasonable grounds for asserting that the presently claimed cell diameter and Young's modulus are inherently present in the rubber of Tojo et al.

As noted by the Examiner, Tojo et al mention a foamed rubber, blowing agents such as azodicarbonamide, an apparent density of foamed rubber (0.03-0.9), and a specific rubber having

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Appln. No. 09/780,485

an apparent density of 0.70 (column 10, lines 15-18 and Example 15). However, there is no determination as to the properties of the foamed rubber.

Regarding the blowing agent, in Example 15 of Tojo et al, OBSH (Celogen OT, p,p'-hydroxybis(benzenesulfonyl hydrazide) produced by Uniroyal Chem. Co.) having a low decomposition temperature (140-160°C) is employed as a blowing agent.

However, Applicants respectfully submit that a foamed rubber with a fine cell diameter, as recited in the presently claimed invention cannot be obtained by use of a blowing agent having such a low decomposition temperature.

In this regard, Applicants have herewith attached copies of selected pages from *BINRAN GOMU·PRASTIC HAIGO YAKUHIN, RUBBER DIGEST SHA KABUSHIKI KAISHA* (phonetic translation), showing for the Examiner's information, the decomposition temperatures of some blowing agents. For example, OBSH has a decomposition temperature of 140-160°C, and ADCA and DPT have decomposition temperatures of 190-205°C (The decomposition temperatures of ADCA and DPT can be lowered to 170°C or less when ADCA and DPT are used together with urea (see Comparative Examples 1 and 2 of the present specification)).

Regarding the presently claimed density, Applicants respectfully submit that the terms "specific gravity" and "density" have approximately the same meaning.

In this regard, it can be generally said that the specific gravity of polyolefin is elevated by chlorination. For example, the specific gravity of a commercially available chlorinated polyethylene ranges from 1.08-1.20, and varies depending on the chlorination rate, while the specific gravity of polyethylene ranges from 0.93-0.98. See the attached copies of selected pages

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Appln. No. 09/780,485

from *GOMU·ELASTOMER KATSUYO NOTE ZOHO KAITEI, KOGYO CHOSAKAI*

*KABUSHIKI KAISHA*, 1999 (phonetic translation).

For example, the chlorination rate of HYPALONE (tradename), which is a commercially available CSM (chlorosulfonated polyethylene), is proportional to the specific gravity thereof as shown in the attached Table A and Graph A. The information contained in the table is taken from page 418 of *KAITEI SHINBAN GOSEI GOMU HANDBOOK, ASAKURASHOTEN* *KABUSHIKI KAISHA*, 1967 (phonetic translation), attached hereto.

Tojo et al do not disclose the specific gravity of the vulcanized rubber. However, the specific gravity of the vulcanized rubber described in Tojo et al can be estimated by calculation based on a recipe described in column 11 of Tojo et al, lines 35-50.

In this regard, it should be initially noted that according to the fundamental theory discussed above, the specific gravity of a chlorinated vulcanized rubber as described in Tojo et al would be greater than that of a non-chlorinated vulcanized rubber.

The specific gravity of the non-chlorinated vulcanized rubber of Tojo et al can be obtained by calculation based on the above-mentioned recipe, by replacing the specific weight of the chlorinated rubber with the specific weight of non-chlorinated EPDM rubber. The specific gravity of non-chlorinated EPDM rubber is known to be 0.87. When this is done, the specific gravity or density of the rubber of Tojo et al is calculated to be 1.18. See the attached Table B.

Accordingly, the specific gravity of the chlorinated vulcanized rubber described in Tojo et al is not within the presently claimed range of 0.7-1.1.

Column 18, Line 13  
density = 0.7 g/cm<sup>3</sup>

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Appln. No. 09/780,485

In view of the above, Applicants respectfully submit that the present claimed invention is not taught or suggested by Tojo et al. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection.

In Paragraph No. 5 of the Office Action, claims 8-10 have been rejected under 35 U.S.C. §103(a) as allegedly obvious over Tojo et al in view of Okita et al (U.S. 6,132,847).

Applicants respectfully submit that the presently claimed foamed rubber is not anticipated or rendered *prima facie* obvious by Tojo et al for the reasons discussed above.

Further, Applicants respectfully submit that the presently claimed composite (Claims 8-10) containing the foamed rubber of the invention is also not anticipated or rendered *prima facie* obvious by Tojo et al for the same reasons, and Okita et al do not rectify the deficiencies of Tojo et al. Accordingly, the Examiner is respectfully requested to reconsider and withdraw this rejection also.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Appln. No. 09/780,485

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



---

Fang Liu  
Registration No. 51,283

SUGHRUE MION, PLLC  
Telephone: (202) 293-7060  
Facsimile: (202) 293-7860

WASHINGTON OFFICE



23373

PATENT TRADEMARK OFFICE

Date: March 11, 2003

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Appln. No. 09/780,485

**APPENDIX**  
**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS:**

Claim 11 is added as a new claim.